CLAIMS

1. A photodetector, comprising:

a semiconductor chip that converts received light to an electric signal; and

a resin body that encapsulates the semiconductor chip,

wherein the photodetector further comprises a protective unit, and

at least a light transmission area, through which the light passes, in a surface of the resin body on an incident side of the light is covered by the protective unit.

2. The photodetector according to claim 1, wherein the protective unit is a protective layer that is laminated on the surface of the resin body on the incident side of the light.

3. The photodetector according to claim 2, wherein the protective layer comprises an inorganic substance.

4. The photodetector according to claim 3, wherein the inorganic substance comprises at least one type of inorganic compound selected from the group consisting of silicon oxide, silicon nitride, magnesium fluoride and tantalum oxide.

5. The photodetector according to claim 2, wherein the protective layer has a function of antireflection.

6. The photodetector according to claim 2, wherein the protective layer is formed by sputtering, evaporation or spin coating.

7. The photodetector according to claim 1, wherein the protective unit comprises:

a plate member that is disposed above the surface of the resin body on the incident side of the light;

a sealing member that bonds the plate member and the resin body and is located away from the light transmission area; and

an inert gas enclosed in a space surrounded by the surface of the resin body on the incident side of the light, the plate member and the

sealing member.

8. The photodetector according to claim 7, wherein the inert gas comprises nitrogen.

9. The photodetector according to claim 1, wherein the protective unit comprises:

a plate member that is disposed above the surface of the resin body on the incident side of the light; and

a sealing member that bonds at least the light transmission area in the surface of the resin body on the incident side of the light with the plate member.

10. The photodetector according to claim 1, wherein the resin body comprises an epoxy resin.

11. The photodetector according to claim 1, wherein an absorptance of the light by the resin body is 10% or less.

12. An optical head device, comprising:

a light source;

a condensing unit that receives light emitted from the light source and collects the light onto an optical storage medium; and

a photodetector that receives light reflected from the optical storage medium and converts the light to an electric signal,

wherein the photodetector, comprises:

a semiconductor chip that converts received light to an electric signal; and

a resin body that encapsulates the semiconductor chip,

wherein the photodetector further comprises a protective unit, and

at least a light transmission area, through which the light passes, in a surface of the resin body on an incident side of the light is covered by the protective unit.

13. The optical head device according to claim 12, wherein in the case where a transmittance of light having a wavelength of $\lambda 1$ with respect to the resin body is 10%, a wavelength λ of the light source satisfies a relationship

of $\lambda 1 < \lambda < 1.5 \cdot \lambda 1$.

14. The optical head device according to claim 12, wherein the wavelength λ of the light source is in a range of 390 nm $< \lambda <$ 420 nm.

15. An optical information processing device, comprising:

an optical head device that comprises: a light source; a condensing unit that receives light emitted from the light source and collects the light onto an optical storage medium; and a photodetector that receives light reflected from the optical storage medium and converts the light to an electric signal, wherein the photodetector, comprises: a semiconductor chip that converts received light to an electric signal; and a resin body that encapsulates the semiconductor chip, wherein the photodetector further comprises a protective unit, and at least a light transmission area, through which the light passes, in a surface of the resin body on an incident side of the light is covered by the protective unit;

an electric signal processing unit that receives a signal output from the optical head device and outputs a predetermined signal; and

a driving unit that receives the predetermined signal so as to change a position of at least one selected from the optical head device and the condensing unit.

16. An optical information processing method embodied using an optical information processing device that comprises:

an optical head device that comprises: a light source; a condensing unit that receives light emitted from the light source and collects the light onto an optical storage medium; and a photodetector that receives light reflected from the optical storage medium and converts the light to an electric signal, wherein the photodetector, comprises: a semiconductor chip that converts received light to an electric signal; and a resin body that encapsulates the semiconductor chip, wherein the photodetector further comprises a protective unit, and at least a light transmission area, through which the light passes, in a surface of the resin body on an incident side of the light is covered by the protective unit;

an electric signal processing unit that receives a signal output from the optical head device and outputs a predetermined signal; and

a driving unit that receives the predetermined signal so as to change

a position of at least one selected from the optical head device and the condensing unit,

wherein in the case where a transmittance of light having a wavelength of $\lambda 1$ with respect to the resin body is 10%, a wavelength λ of the light source satisfies a relationship of $\lambda 1 < \lambda < 1.5 \cdot \lambda 1$.

17. The information processing method according to claim 16, wherein the light source emits light having a wavelength λ of 390 nm $< \lambda <$ 420 nm.